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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 853,784	05 14 2001	Masahide Maeda	KIX0146-US	7028

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EXAMINER

ERDEM, FAZLI

ART UNIT PAPER NUMBER

2826

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,784

Applicant(s)

MAEDA, MASAHIRO

Examiner

Fazli Erdem

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Aono et al. (5,521,429) in view of Yamaguchi (6,081,029) further in view of Takata et al. (5,977,613).

Regarding Claim 1, Fig 1A of Aono et al. disclose a semiconductor chip 11, an external connection electrode 12 connected to the chip, and a resin package 14 which covers the chip and has a mounting surface. Furthermore, the electrode 12 has a thick section 16 and a thin section 17, where the thick section is being exposed to outside at the mounting surface of the package.

Regarding Claim 2, Fig 1A of Aono et al. disclose that the electrode 12 has a flat upper surface for mounting the chip, the thick section 16 has a downward projection extending from the upper surface to the mounting surface of the package.

Regarding Claim 3, Fig 1A of Aono et al. disclose that the electrode projection 16 includes an end surface exposed to outside at the mounting surface of the package and the side surfaces are closely covered with the package 14.

Regarding Claim 4, Fig 1A of Aono et al. disclose that the thick section 16 and the thin section 17 are formed of a same material and they are integral with each other.

Regarding Claim 5, Fig 1A of Aono et al. disclose a package structure where the two thick sections 16 are spaced from each other and the thin sections 17 connect the thick sections

via wirebond 13 and that the two thick sections are exposed to outside at the mounting surface of the package 14.

Regarding Claim 6, Fig 4A of Aono et al. show a package structure where the package 44 includes a side surface different from the mounting surface and the thin section 42 include a horizontal extension exposed to outside at the side of the package.

Regarding Claim 7, Fig 4A of Aono et al. show a package structure where the thin section 42 is spaced from the mounting surface of the package 44.

Regarding Claim 8, Fig 1A of Aono et al. show a package structure where there is an additional electrode 12 which includes a thick section 16 and a thin section 17 and the thick section 16 of the additional electrode is being exposed to outside at the mounting surface of the package 14.

Regarding Claim 9, Fig 1A of Aono et al. show a package structure where the external connection electrode includes a first flat surface for mounting the chip, the additional electrode including a second flat surface for connection to the chip via a wire 13, and the first surface and the second surface are flush with each other.

Regarding Claims 1-9 Aono et al. fail to disclose the required mounting electrode with the required configuration and external connection electrode with the required configuration. However, Yamaguchi discloses a resin encapsulated semiconductor device having reduced thickness and improved reliability where in Figs. 1 and 5 the required mounting electrode is shown. Furthermore, Takata et al. disclose an electronic component, method for making the same, and lead frame and mold assembly for use therein where in Fig. 2 the required external electrode is shown.

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It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required mounting electrode and external electrode in Aono et al. as taught by Yamaguchi and Takata et al. respectively in order to have a semiconductor packaging device with better manufacturability.

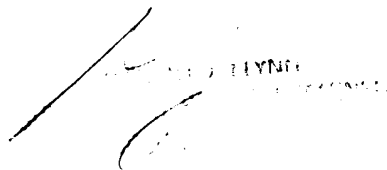
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE
March 22, 2003



NATHAN FLYNN